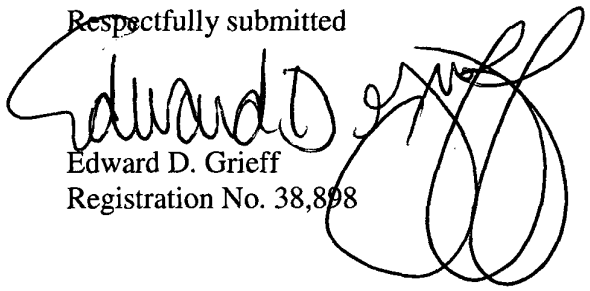
Applicants respectfully request an early and favorable consideration and allowance of claims 1-115.

Respectfully submitted



Edward D. Grieff
Registration No. 38,898

Dated: June 8, 2001

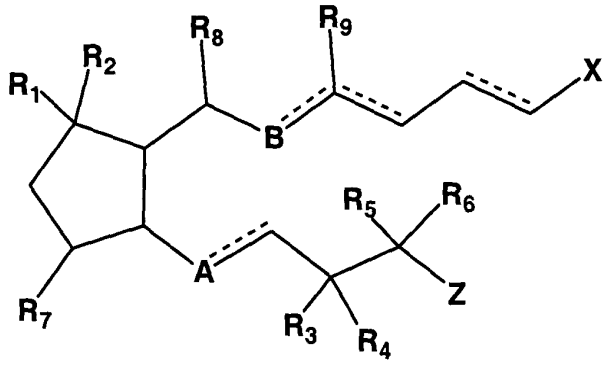
HALE and DORR LLP
1455 Pennsylvania Avenue, NW
Washington, DC 20004
Phone: (202) 942-8453

Appendix 1 Pending Claims

What is claimed is:

1. A prostaglandin comprising at least one NO group or a pharmaceutically acceptable salt thereof.

2. (Amended) A compound of formula (I) or a pharmaceutically acceptable salt thereof wherein the compound of formula (I) is:



(I)

wherein the dotted lines indicate a single or a double bond;

R_1 is $-OD_1$ or –Cl;

R_2 and R_8 are a hydrogen ; or R_1 and R_2 taken together are $=CH_2$ or =O;

R_3 and R_4 are each independently a hydrogen, $-OD_1$ or $-CH_3$;

R_5 and R_6 are each independently a hydrogen, $-OD_1$, $-CH_3$, $-OCH_3$ or $-CH=CH_2$;

R_7 is a hydrogen or $-OD_1$;

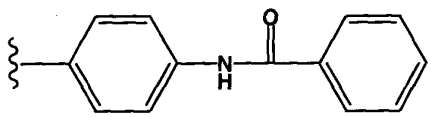
R_9 is hydrogen or absent when the carbon to which it is attached is the central carbon of an allene functionality; or R_8 and R_9 taken together with the chain to which they are attached form a substituted benzene ring with the proviso that R_1 is an oxygen atom which is attached to the carbon atom at the position of the benzene ring defined by B;

A is –CH=, $-CH_2$, -S-, or -O-;

B is –CH=, $-CH_2$, -S-, or –C(O)-;

X is $-CH_2OR_{11}$, $-C(O)OR_{11}$ or $-C(O)N(D_1)R_{12}$;

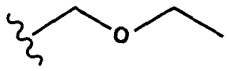
R_{11} is D_1, a lower alkyl group, or



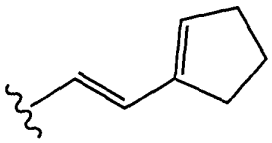
R_{12} is $-S(O)_2CH_3$ or $-C(O)CH_3$;

Z is (a) an ethyl, (b) a butyl, (c) a hexyl, (d) a benzyl,

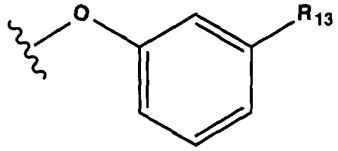
(e)



(f)

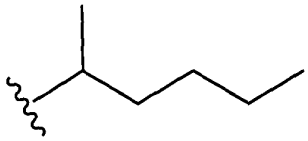


(g)



(h)

or



R_{13} is a hydrogen or –Cl;

D_1 is a hydrogen or D; with the proviso that at least one D_1 in formula (I) must be D;

D is Q or K;

Q is -NO or $-NO_2$;

K is $-W_a-E_b-(C(R_e)(R_f))_p-E_c-(C(R_e)(R_f))_x-W_d-(C(R_e)(R_f))_y-W_i-E_j-W_g-(C(R_e)(R_f))_z-T-Q$; with the proviso that when X is $-C(O)OD_1$ and D_1 is K, then K is not an alkyl, branched alkyl or cycloalkyl mononitrate; a benzoic acid substituted benzyloxy mononitrate; an ethylene glycol mononitrate; a polyethylene glycol mononitrate; the regioisomeric esters of glycerol dinitrate and oligomers thereof;

a, b, c, d, g, i and j are each independently an integer from 0 to 3;

p, x, y and z are each independently an integer from 0 to 10;

W at each occurrence is independently -C(O)-, -C(S)-, -T-, $-(C(R_e)(R_f))_h-$, an alkyl group, an aryl group, a heterocyclic ring, an arylheterocyclic ring, or $-(CH_2CH_2O)_q-$;

E at each occurrence is independently -T-, an alkyl group, an aryl group, $-(C(R_e)(R_f))_h-$, a heterocyclic ring, an arylheterocyclic ring, or $-(CH_2CH_2O)_q-$;

h is an integer form 1 to 10;

q is an integer from 1 to 5;

R_e and R_f are each independently a hydrogen, an alkyl, a cycloalkoxy, a halogen, a hydroxy, an hydroxyalkyl, an alkoxyalkyl, an arylheterocyclic ring, an alkylaryl, a cycloalkylalkyl, a heterocyclicalkyl, an alkoxy, a haloalkoxy, an amino, an alkylamino, a dialkylamino, an arylamino, a diarylamino, an alkylarylamino, an alkoxyhaloalkyl, a haloalkoxy, a sulfonic acid, a sulfonic ester, an alkylsulfonic acid, an arylsulfonic acid, an arylalkoxy, an alkylthio, an arylthio, a cycloalkylthio, a cycloalkenyl, a cyano, an aminoalkyl, an aminoaryl, an aryl, an arylalkyl, an alkylaryl, a carboxamido, a alkylcarboxamido, an arylcarboxamido, an amidyl, a carboxyl, a carbamoyl, a carbamate, an alkylcarboxylic acid, an arylcarboxylic acid, an alkylcarbonyl, an arylcarbonyl, an ester, a carboxylic ester, an alkylcarboxylic ester, an arylcarboxylic ester, a haloalkoxy, a sulfonamido, an alkylsulfonamido, an arylsulfonamido, a sulfonic ester, a urea, a phosphoryl, a nitro, -T-Q , or $(C(R_e)(R_f))_k$-T-Q, or R_e and R_f taken together with the carbons to which they are attached form a carbonyl, a methanthial, a heterocyclic ring, a cycloalkyl group or a bridged cycloalkyl group;

k is an integer from 1 to 3;

T at each occurrence is independently a covalent bond, a carbonyl, an oxygen, $-S(O)_o-$ or $-N(R_a)R_i-$;

o is an integer from 0 to 2;

R_a is a lone pair of electrons, a hydrogen or an alkyl group;

R_i is a hydrogen, an alkyl, an aryl, an alkylcarboxylic acid, an arylcarboxylic acid, an alkylcarboxylic ester, an arylcarboxylic ester, an alkylcarboxamido, an arylcarboxamido, an alkylaryl, an alkylsulfinyl, an alkylsulfonyl, an arylsulfinyl, an arylsulfonyl, a sulfonamido, a carboxamido, a carboxylic ester, an amino alkyl, an amino aryl, $-CH_2-C(T-Q)(R_e)(R_f)$, or $-(N_2O_2-)^-\bullet M^+$, wherein M^+ is an organic or inorganic cation; with the proviso that when R_i is $-CH_2-C(T-Q)(R_e)(R_f)$ or $-(N_2O_2)^-\bullet M^+$, or R_e or R_f are T-Q or $(C(R_e)(R_f))_k$-T-Q, then the "-T- Q" subgroup can be a hydrogen, an alkyl, an alkoxy, an alkoxyalkyl, an aminoalkyl, a hydroxy, a heterocyclic ring or an aryl group.

3. The compound of claim 2, wherein the compound comprising at least one NO group, at least one NO_2 group, or at least one NO and NO_2 group is arbaprostil, alprostadil, beraprost, carboprost, cloprostenol, dimoxaprost, enprostil, enisoprost, fluprostenol, fenprostalene, gemeprost, latanaprost, limaprost, meteneprost, mexiprostil, misoprostol, misoprost, misoprostol acid, nocloprost, ornoprostil, prostalene, PGE_1, PGE_2, PGF_1, PGF_2 , rioprostil, rosaprostol, remiprostol, sulprostone, trimoprostil, tiprostanide, unoprostone, viprostol or a mixture thereof.

4. A composition comprising the compound of claim 2 and a pharmaceutically acceptable carrier.

5. A method for treating a sexual dysfunction in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 4.

6. The method of claim 5, wherein the patient is female.

7. The method of claim 5, wherein the patient is male.

8. The method of claim 5, wherein the composition is administered orally, by intracavernosal injection, by transurethral application, or by transdermal application.

9. A method for treating a cerebrovascular disorder, a cardiovascular disorder, benign prostatic hyperplasia, organ transplants, glaucoma, or a peptic ulcer, or for inducing an abortion in a patient in need thereof comprising administering to the patient the composition of claim 4.

10. The composition of claim 4, further comprising at least one vasoactive agent or a pharmaceutically acceptable salt thereof.

11. The composition of claim 10, wherein the vasoactive agent is a potassium channel activator, a calcium channel blocker, an α–blocker, a β–blocker, a phosphodiesterase inhibitor, adenosine, an ergot alkaloid, a vasoactive intestinal peptide, a dopamine agonist, an opioid antagonist, an endothelin antagonist or a mixture thereof.

12. The composition of claim 10, wherein the vasoactive agent is an α-blocker or a phosphodiesterase inhibitor.

13. The composition of claim 12, wherein the α-blocker is phentolamine, prazosin, doxazosin, terazosin, yohimbine or moxisylyte and the phosphodiesterase inhibitor is papaverine, zaprinast, sildenafil or IC 351, or a mixture thereof.

14. A method for treating a sexual dysfunction in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 10.

15. The method of claim 14, wherein the patient is female.

16. The method of claim 14, wherein the patient is male.

17. The method of claim 14, wherein the composition is administered orally, by intracavernosal injection, by transurethral application or by transdermal application.

18. A method for treating a cerebrovascular disorder, a cardiovascular disorder, benign prostatic hyperplasia, organ transplants, glaucoma, or a peptic ulcer, or for inducing an abortion in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 10.

19. (Amended) A composition comprising at least one compound of claim 2 or a pharmaceutically acceptable salt thereof, and at least one compound that donates, transfers or releases nitric oxide, or induces the production of endogenous nitric oxide or endothelium-derived relaxing factor, or is a substrate for nitric oxide synthase.

20. (Amended) The composition of claim 19, further comprising a pharmaceutically acceptable carrier.

21. The composition of claim 19, wherein the compound that donates, transfers, or releases nitric oxide, or induces the production of endogenous nitric oxide or endothelium-derived relaxing factor or is a substrate for nitric oxide synthase is an S-nitrosothiol.

22. The composition of claim 21, wherein the S-nitrosothiol is S-nitroso-N-acetylcysteine, S-nitroso-captopril, S-nitroso-N-acetylpenicillamine, S-nitroso-homocysteine, S-nitroso-cysteine or S-nitroso-glutathione.

23. The composition of claim 21, wherein the S-nitrosothiol is:

(i) $HS(C(R_e)(R_f))_mSNO$;

(ii) $ONS(C(R_e)(R_f))_mR_e$; and

(iii) $H_2N\text{-}CH(CO_2H)\text{-}(CH_2)_m\text{-}C(O)NH\text{-}CH(CH_2SNO)\text{-}C(O)NH\text{-}CH_2\text{-}CO_2H$;

wherein m is an integer from 2 to 20; R_e and R_f are each independently a hydrogen, an alkyl, a cycloalkoxy, a halogen, a hydroxy, an hydroxyalkyl, an alkoxyalkyl, an arylheterocyclic ring, an alkylaryl, a cycloalkylalkyl, a heterocyclicalkyl, an alkoxy, a haloalkoxy, an amino, an alkylamino, a dialkylamino, an arylamino, a diarylamino, an alkylarylamino, an alkoxyhaloalkyl, a haloalkoxy, a sulfonic acid, a sulfonic ester, an alkylsulfonic acid, an arylsulfonic acid, an arylalkoxy, an alkylthio, an arylthio, a cycloalkylthio, a cycloalkenyl, a cyano, an aminoalkyl, an aminoaryl, an aryl, an arylalkyl, an alkylaryl, a carboxamido, a alkylcarboxamido, an

arylcarboxamido, an amidyl, a carboxyl, a carbamoyl, a carbamate, an alkylcarboxylic acid, an arylcarboxylic acid, an alkylcarbonyl, an arylcarbonyl, an ester, a carboxylic ester, an alkylcarboxylic ester, an arylcarboxylic ester, a haloalkoxy, a sulfonamido, an alkylsulfonamido, an arylsulfonamido, a sulfonic ester, a urea, a phosphoryl, a nitro, -T-Q , or $(C(R_e)(R_f))_k$-T-Q, or R_e and R_f taken together with the carbons to which they are attached form a carbonyl, a methanthial, a heterocyclic ring, a cycloalkyl group or a bridged cycloalkyl group; Q is -NO or -NO_2; and T is independently a covalent bond, a carbonyl, an oxygen, -$S(O)_o$- or -$N(R_a)R_i$-, wherein o is an integer from 0 to 2, R_a is a lone pair of electrons, a hydrogen or an alkyl group; R_i is a hydrogen, an alkyl, an aryl, an alkylcarboxylic acid, an aryl carboxylic acid, an alkylcarboxylic ester, an arylcarboxylic ester, an alkylcarboxamido, an arylcarboxamido, an alkylaryl, an alkylsulfinyl, an alkylsulfonyl, an arylsulfinyl, an arylsulfonyl, a sulfonamido, a carboxamido, a carboxylic ester, an amino alkyl, an amino aryl, -CH_2-C(T-Q)(R_e)(R_f), or -$(N_2O_2$-$)^-$•M^+, wherein M^+ is an organic or inorganic cation; with the proviso that when R_i is -CH_2-C(T-Q)(R_e)(R_f) or -$(N_2O_2$-)•M^+; then "-T-Q" can be a hydrogen, an alkyl group, an alkoxyalkyl group, an aminoalkyl group, a hydroxy group or an aryl group.

24. The composition of claim 19, wherein the compound that donates, transfers, or releases nitric oxide, or induces the production of endogenous nitric oxide or endothelium-derived relaxing factor, or is a substrate for nitric oxide synthase, is L-arginine, L-homoarginine, N-hydroxy-L-arginine, nitrosated L-arginine, nitrosylated L-arginine, nitrosated N-hydroxy-L-arginine, nitrosylated N-hydroxy-L-arginine, citrulline, ornithine, glutamine, lysine, polypeptides comprising at least one of these amino acids or inhibitors of the enzyme arginase.

25. The composition of claim 19, wherein the compound that donates, transfers, or releases nitric oxide, or induces the production of endogenous nitric oxide or endothelium-derived relaxing factor, or is a substrate for nitric oxide synthase is:

(i) a compound that comprises at least one ON-O-, ON-N- or ON-C- group;

(ii) a compound that comprises at least one O_2N-O-, O_2N-N-, O_2N-S- or -O_2N-C- group;

(iii) a N-oxo-N-nitrosoamine having the formula: R^1R^2-N(O-M^+)-NO, wherein R^1 and R^2 are each independently a polypeptide, an amino acid, a sugar, an oligonucleotide, a straight or branched, saturated or unsaturated, aliphatic or aromatic, substituted or unsubstituted hydrocarbon, or a heterocyclic group, and M^+ is an organic or inorganic cation.

26. The composition of claim 25, wherein the compound comprising at least one ON-O-, ON-N- or ON-C- group is an ON-O-polypeptide, an ON-N-polypepetide, an ON-C-polypeptide, an ON-O-amino acid, an ON-N-amino acid, an ON-C-amino acid, an ON-O-sugar, an ON-N-sugar, an ON-C-sugar, an ON-O-oligonucleotide, an ON-N-oligonucleotide, an ON-C-oligonucleotide, a straight or branched, saturated or unsaturated, substituted or unsubstituted, aliphatic or aromatic ON-O-hydrocarbon, a straight or branched, saturated or unsaturated, substituted or unsubstituted, aliphatic or aromatic ON-N-hydrocarbon, a straight or branched, saturated or unsaturated, substituted or unsubstituted, aliphatic or aromatic ON-C-hydrocarbon, an ON-O-heterocyclic compound, an ON-N-heterocyclic compound or a ON-C-heterocyclic compound.

27. The composition of claim 25, wherein compound comprising at least one O_2N-O-, O_2N-N-, O_2N-S- or O_2N-C- group is an O_2N-O-polypeptide, an O_2N-N-polypeptide, an O_2N-S-polypeptide, an O_2N-C-polypeptide, an O_2N-O-amino acid, O_2N-N-amino acid, O_2N-S-amino acid, an O_2N-C-amino acid, an O_2N-O-sugar, an O_2N-N-sugar, O_2N-S-sugar, an O_2N-C-sugar, an O_2N-O-oligonucleotide, an O_2N-N-oligonucleotide, an O_2N-S-oligonucleotide, an O_2N-C-oligonucleotide, a straight or branched, saturated or unsaturated, aliphatic or aromatic, substituted or unsubstituted O_2N-O-hydrocarbon, a straight or branched, saturated or unsaturated, aliphatic or aromatic, substituted or unsubstituted O_2N-N-hydrocarbon, a straight or branched, saturated or unsaturated, aliphatic or aromatic, substituted or unsubstituted O_2N-S-hydrocarbon, a straight or branched, saturated or unsaturated, aliphatic or aromatic, substituted or unsubstituted O_2N-C-hydrocarbon, an O_2N-O-heterocyclic compound, an O_2N-N-heterocyclic compound, an O_2N-S-heterocyclic compound or an O_2N-C-heterocyclic compound.

28. A method for treating a sexual dysfunction in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 19.

29. The method of claim 28, wherein the patient is female.

30. The method of claim 28, wherein the patient is male.

31. The method of claim 28, wherein the composition is administered orally, by intracavernosal injection, by transurethral application or by transdermal application.

32. A method for treating a cerebrovascular disorder, a cardiovascular disorder, benign prostatic hyperplasia, organ transplants, glaucoma, or a peptic ulcer, or for inducing an abortion

in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 19.

33. The composition of claim 19, further comprising at least one vasoactive agent or a pharmaceutically acceptable salt thereof.

34. The composition of claim 33, wherein the vasoactive agent is a potassium channel activator, a calcium channel blocker, an α–blocker, a β–blocker, a phosphodiesterase inhibitor, adenosine, an ergot alkaloid, a vasoactive intestinal peptide, a dopamine agonist, an opioid antagonist, an endothelin antagonist or a mixture thereof.

35. The composition of claim 34, wherein the vasoactive agent is an α-blocker or a phosphodiesterase inhibitor.

36. The composition of claim 35, wherein the α-blocker is phentolamine, prazosin, doxazosin, terazosin, yohimbine or moxisylyte and the phosphodiesterase inhibitor is papaverine, zaprinast, sildenafil or IC 351, or a mixture thereof.

37. A method for treating a sexual dysfunction in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 33.

38. The method of claim 37, wherein the patient is female.

39. The method of claim 37, wherein the patient is male.

40. The method of claim 37, wherein the composition is administered orally, by intracavernosal injection, by transurethral application or by transdermal application.

41. A method for treating a cerebrovascular disorder, a cardiovascular disorder, benign prostatic hyperplasia, organ transplants, glaucoma, or a peptic ulcer, or for inducing an abortion in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 33.

42. A method for preventing or treating a sexual dysfunction in a patient in need thereof comprising administering to the patient a therapeutically effective amount of at least one prostaglandin or a pharmaceutically acceptable salt thereof and at least one S-nitrosothiol compound or a pharmaceutically acceptable salt thereof.

43. The method of claim 42, wherein the at least one prostaglandin is a PGE_1 compound, a PGE_2 compound, a PGF_3 compound, a $PGF_{1\alpha}$ compound, a $PGF_{2\alpha}$ compound or a PGD_2 compound.

44. The method of claim 43, wherein the at least one prostaglandin is a PGE_1 compound.

45. The method of claim 44, wherein the PGE_1 compound is alprostadil, misoprostol, a misoprostol acid, enprostil, an α-cyclodextrin complex of alprostadil, an α-cyclodextrin complex of misoprostol, an α-cyclodextrin complex of a misoprostol acid, or an α-cyclodextrin complex of enprostil.

46. The method of claim 45, wherein the PGE_1 compound is alprostadil.

47. The method of claim 42, wherein the at least one S-nitrosothiol compound is S-nitrosoglutathione, S-nitroso-N-acetylcysteine, S-nitrosocysteine, S-nitrosohomocysteine, S-nitrosopenicillamine or S-nitrosocaptopril.

48. The method of claim 47, wherein the S-nitrosothiol compound is S-nitrosoglutathione.

49. The method of claim 42, wherein the patient is female.

50. The method of claim 42, wherein the patient is male.

51. The method of claim 42, wherein the at least one prostaglandin and the at least one S-nitrosothiol compound are administered separately.

52. The method of claim 42, wherein the at least one prostaglandin and the at least one S-nitrosothiol compound are components of the same composition.

53. The method of claim 42, wherein the prostaglandin and the S-nitrosothiol compound are administered by intracavernosal injection, by transurethral application, or by topical application.

54. The method of claim 49, wherein the prostaglandin and the S-nitrosothiol compound are administered by topical application.

55. The method of claim 54, wherein the topical application is a vaginal application or a vulval application.

56. The method of claim 53, wherein the prostaglandin is administered by intracavernosal injection.

57. The method of claim 56, wherein the prostaglandin administered by intracavernosal injection is present in an amount of about 1 μg to about 40 μg.

58. The method of claim 57, wherein the prostaglandin administered by intracavernosal injection is present in an amount of about 2.5 μg to about 10 μg.

59. The method of claim 56, wherein the intracavernosal injection is with a conventional syringe-and-needle device.

60. The method of claim 56, wherein the intracavernosal injection is with a needleless injection device.

61. The method of claim 53, wherein the S-nitrosothiol compound is administered by intracavernosal injection.

62. The method of claim 61, wherein the S-nitrosothiol compound administered by intracavernosal injection is present in an amount of about 10 μg to about 5 mg.

63. The method of claim 62, wherein the S-nitrosothiol compound administered by intracavernosal injection is present in an amount of about 500 μg to about 2 mg.

64. The method of claim 61, wherein the administration of the S-nitrosothiol compound is with a conventional syringe-and-needle device.

65. The method of claim 61, wherein the administration of the S-nitrosothiol compound is with a needleless injection device.

66. The method of claim 53, wherein the prostaglandin is administered by topical application.

67. The method of claim 54 or claim 66, wherein the prostaglandin administered by topical application is present in an amount of about 1 μg to about 5 mg.

68. The method of claim 67, wherein the prostaglandin administered by topical application is present in an amount of about 20 μg to about 2 mg.

69. The method of claim 54 or claim 66, wherein the prostaglandin administered by topical application is in the form of a cream, a spray, a lotion, a gel, an ointment, an emulsion, a foam, a coating for a condom, or a liposome composition.

70. The method of claim 53, wherein the S-nitrosothiol compound is administered by topical application.

71. The method of claim 54 or claim 70, wherein the S-nitrosothiol compound administered by topical application is present in an amount of about 10 mg to about 1 g.

72. The method of claim 71, wherein the S-nitrosothiol compound administered by topical application is present in an amount of about 50 mg to about 750 mg.

73. The method of claim 54 or claim 70, wherein the S-nitrosothiol compound administered by topical application is in the form of a cream, a spray, a lotion, a gel, an ointment, an emulsion, a foam, a coating for a condom or a liposome composition.

74. The method of claim 42, wherein the prostaglandin and the S-nitrosothiol compound are administered about 1 minute to about 60 minutes prior to sexual activity or sexual intercourse.

75. The method of claim 74, wherein the prostaglandin and the S-nitrosothiol compound are administered about 5 minute to about 10 minutes prior to sexual activity or sexual intercourse.

76. The method of claim 42, further comprising at least one vasoactive agent or a pharmaceutically acceptable salt thereof.

77. The method of claim 76, wherein the vasoactive agent is a potassium channel activator, a calcium channel blocker, an α–blocker, a β–blocker, a phosphodiesterase inhibitor, adenosine, an ergot alkaloid, a vasoactive intestinal peptide, a dopamine agonist, an opioid antagonist, an endothelin antagonist or a mixture thereof.

78. The method of claim 77, wherein the vasoactive agent is an α-blocker or a phosphodiesterase inhibitor.

79. The method of claim 78, wherein the α-blocker is phentolamine, prazosin, doxazosin, terazosin, yohimbine or moxisylyte and the phosphodiesterase inhibitor is papaverine, zaprinast, sildenafil or IC 351, or a mixture thereof.

80. A method for treating a cerebrovascular disorder, a cardiovascular disorder, benign prostatic hyperplasia, organ transplants, glaucoma, or a peptic ulcer, or for inducing an abortion in a patient in need thereof comprising administering to the patient a therapeutically effective amount of at least one prostaglandin or a pharmaceutically acceptable salt thereof and at least one S-nitrosothiol compound or a pharmaceutically acceptable salt thereof.

81. The method of claim 80, further comprising administering at least one vasoactive agent or a pharmaceutically acceptable salt thereof.

82. A pharmaceutical composition comprising a therapeutically effective amount of at least one prostaglandin or a pharmaceutically acceptable salt thereof and at least one S-nitrosothiol compound or a pharmaceutically acceptable salt thereof.

83. The pharmaceutical composition of claim 82, wherein the at least one prostaglandin is a PGE_1 compound, a PGE_2 compound, a PGF_3 compound, a $PGF_{1\alpha}$ compound, a $PGF_{2\alpha}$ compound or a PGD_2 compound.

84. The pharmaceutical composition of claim 83, wherein the at least one prostaglandin is a PGE_1 compound.

85. The pharmaceutical composition of claim 84, wherein the PGE_1 compound is alprostadil, misoprostol, a misoprostol acid, enprostil, an α-cyclodextrin complex of alprostadil, an α-cyclodextrin complex of misoprostol, an α-cyclodextrin complex of a misoprostol acid, or an α-cyclodextrin complex of enprostil.

86. The pharmaceutical composition of claim 84, wherein the PGE_1 compound is alprostadil.

87. The pharmaceutical composition of claim 82, wherein the at least one S-nitrosothiol compound is S-nitrosoglutathione, S-nitroso-N-acetylcysteine, S-nitrosocysteine, S-nitrosohomocysteine, S-nitrosopenicillamine or S-nitrosocaptopril.

88. The pharmaceutical composition of claim 87, wherein the at least one S-nitrosothiol compound is S-nitrosoglutathione.

89. The pharmaceutical composition of claim 82, further comprising at least one pharmaceutically acceptable carrier.

90. The pharmaceutical composition of claim 82, wherein the composition is in a form that can be administered by intracavernosal injection, by transurethral application, or by topical application.

91. The pharmaceutical composition of claim 90, wherein the composition is in a form that can be administered by intracavernosal injection.

92. The pharmaceutical composition of claim 90, wherein the composition is in a form that can be administered by transurethral application.

93. The pharmaceutical composition of claim 90, wherein the composition is in a form that can be administered by topical application.

94. The pharmaceutical composition of claim 93, wherein the composition is in the form that can be administered by vaginal administration or by vulval administration.

95. The pharmaceutical composition of claim 82, wherein the pharmaceutical composition is in the form of a cream, a spray, a lotion, a gel, an ointment, an emulsion, a foam, a coating for a condom, or a liposome composition.

96. The pharmaceutical composition of claim 82 or claim 91, wherein the prostaglandin is present in an amount of about 1 μg to about 40 μg.

97. The pharmaceutical composition of claim 96, wherein the prostaglandin is present in an amount of about 2.5 μg to about 10 μg.

98. The pharmaceutical composition of claim 82 or claim 91, wherein the S-nitrosothiol compound is present in an amount of about 10 μg to about 5 mg.

99. The pharmaceutical composition of claim 98, wherein the S-nitrosothiol compound is present in an amount of about 500 μg to about 2 mg.

100. The pharmaceutical composition of claim 82, claim 93 or claim 95, wherein the prostaglandin is present in an amount of about 1 μg to about 5 mg.

101. The pharmaceutical composition of claim 100, wherein the prostaglandin is present in an amount of about 20 μg to about 2 mg.

102. The pharmaceutical composition of claim 82, claim 93 or claim 95, wherein the S-nitrosothiol compound is present in an amount of about 5 mg to about 1 g.

103. The pharmaceutical composition of claim 102, wherein the S-nitrosothiol compound is present in an amount of about 10 mg to about 750 mg.

104. A kit comprising at least one compound of claim 2 and at least one compound that donates, transfers or releases nitric oxide, or induces the production of endogenous nitric oxide or endothelium-derived relaxing factor, or is a substrate for nitric oxide synthase.

105. The kit of claim 104, wherein the compound of claim 2 and the at least one compound that donates, transfers or releases nitric oxide, induces the production of endogenous nitric oxide or endothelium-derived relaxing factor, or is a substrate for nitric oxide synthase are separate components in the kit or are in the form of a composition in the kit.

106. The kit of claim 104, further comprising at least one vasoactive agent.

107. A kit comprising a therapeutically effective amount of at least one prostaglandin and at least one S-nitrosothiol compound.

108. The kit of claim 107, wherein the at least one prostaglandin is a PGE_1 compound, a PGE_2 compound, a PGF_3 compound, a $PGF_{1\alpha}$ compound, a $PGF_{2\alpha}$ compound, or a PGD_2 compound.

109. The kit of claim 108, wherein the at least one prostaglandin is a PGE_1 compound.

110. The kit of claim 109, wherein the PGE_1 compound is alprostadil, misoprostol, a misoprostol acid, enprostil, an α-cyclodextrin complex of alprostadil, an α-cyclodextrin complex of misoprostol, an α-cyclodextrin complex of a misoprostol acid, or an α-cyclodextrin complex of enprostil.

111. The kit of claim 110, wherein the PGE_1 compound is alprostadil.

112. The kit of claim 107, wherein the at least one S-nitrosothiol compound is S-nitrosoglutathione, S-nitroso-N-acetylcysteine, S-nitrosocysteine, S-nitrosohomocysteine, S-nitrosopenicillamine or S-nitrosocaptopril.

113. The kit of claim 112, wherein the at least one S-nitrosothiol compound is S-nitrosoglutathione.

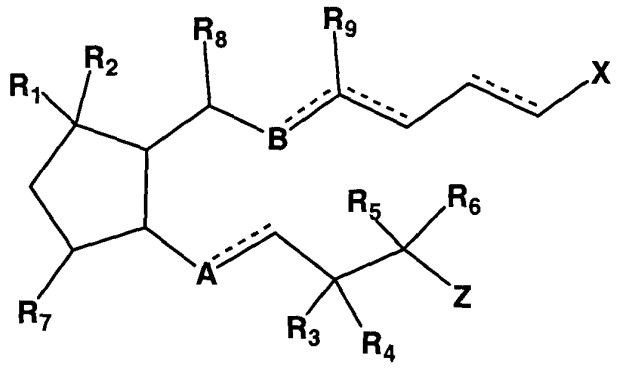
114. The kit of claim 107, wherein the kit further comprises a device for applying the prostaglandin and the S-nitrosothiol compound.

115. The kit of claim 107, further comprising at least one vasoactive agent.

Appendix 2 Amendments to Claims

2. (Amended) A compound of formula (I) or a pharmaceutically acceptable salt thereof wherein the compound of formula (I) is:

[A principal aspect of the present invention relates to novel nitrosated and/or nitrosylated prostaglandins having formula (I):]



(I)

wherein the dotted lines indicate a single or a double bond;

R_1 is $-OD_1$ or –Cl;

R_2 and R_8 are a hydrogen ; or R_1 and R_2 taken together are $=CH_2$ or =O;

R_3 and R_4 are each independently a hydrogen, $-OD_1$ or $-CH_3$;

R_5 and R_6 are each independently a hydrogen, $-OD_1$, $-CH_3$, $-OCH_3$ or $-CH=CH_2$;

R_7 is a hydrogen or $-OD_1$;

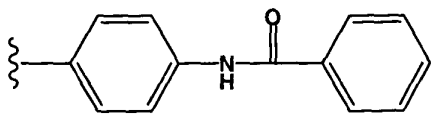
R_9 is hydrogen or absent when the carbon to which it is attached is the central carbon of an allene functionality; or R_8 and R_9 taken together with the chain to which they are attached form a substituted benzene ring with the proviso that R_1 is an oxygen atom which is attached to the carbon atom at the position of the benzene ring defined by B;

A is –CH=, $-CH_2$, -S-, or -O-;

B is –CH=, $-CH_2$, -S-, or –C(O)-;

X is $-CH_2OR_{11}$, $-C(O)OR_{11}$ or $-C(O)N(D_1)R_{12}$;

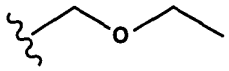
R_{11} is D_1, a lower alkyl group, or



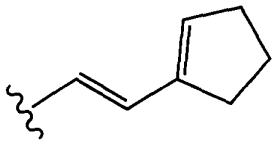
R_{12} is $-S(O)_2CH_3$ or $-C(O)CH_3$;

Z is (a) an ethyl, (b) a butyl, (c) a hexyl, (d) a benzyl,

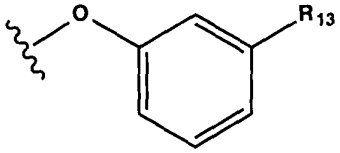
(e)



(f)

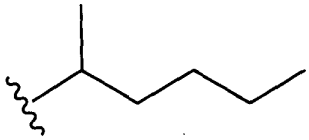


(g)



(h)

or



R_{13} is a hydrogen or –Cl;

D_1 is a hydrogen or D; with the proviso that at least one D_1 in formula (I) must be D;

D is Q or K;

Q is -NO or $-NO_2$;

K is $-W_a-E_b-(C(R_e)(R_f))_p-E_c-(C(R_e)(R_f))_x-W_d-(C(R_e)(R_f))_y-W_i-E_j-W_g-(C(R_e)(R_f))_z-T-Q$; with the proviso that when X is $-C(O)OD_1$ and D_1 is K, then K is not an alkyl, branched alkyl or cycloalkyl mononitrate; a benzoic acid substituted benzyloxy mononitrate; an ethylene glycol mononitrate; a polyethylene glycol mononitrate; the regioisomeric esters of glycerol dinitrate and oligomers thereof;

a, b, c, d, g, i and j are each independently an integer from 0 to 3;

p, x, y and z are each independently an integer from 0 to 10;

W at each occurrence is independently -C(O)-, -C(S)-, -T-, $-(C(R_e)(R_f))_h-$, an alkyl group, an aryl group, a heterocyclic ring, an arylheterocyclic ring, or $-(CH_2CH_2O)_q-$;

E at each occurrence is independently -T-, an alkyl group, an aryl group, $-(C(R_e)(R_f))_h-$, a heterocyclic ring, an arylheterocyclic ring, or $-(CH_2CH_2O)_q-$;

h is an integer form 1 to 10;

q is an integer from 1 to 5;

R_e and R_f are each independently a hydrogen, an alkyl, a cycloalkoxy, a halogen, a hydroxy, an hydroxyalkyl, an alkoxyalkyl, an arylheterocyclic ring, an alkylaryl, a cycloalkylalkyl, a heterocyclicalkyl, an alkoxy, a haloalkoxy, an amino, an alkylamino, a dialkylamino, an arylamino, a diarylamino, an alkylarylamino, an alkoxyhaloalkyl, a haloalkoxy, a sulfonic acid, a sulfonic ester, an alkylsulfonic acid, an arylsulfonic acid, an arylalkoxy, an alkylthio, an arylthio, a cycloalkylthio, a cycloalkenyl, a cyano, an aminoalkyl, an aminoaryl, an aryl, an arylalkyl, an alkylaryl, a carboxamido, a alkylcarboxamido, an arylcarboxamido, an amidyl, a carboxyl, a carbamoyl, a carbamate, an alkylcarboxylic acid, an arylcarboxylic acid, an alkylcarbonyl, an arylcarbonyl, an ester, a carboxylic ester, an alkylcarboxylic ester, an arylcarboxylic ester, a haloalkoxy, a sulfonamido, an alkylsulfonamido, an arylsulfonamido, a sulfonic ester, a urea, a phosphoryl, a nitro, -T-Q , or $(C(R_e)(R_f))_k$-T-Q, or R_e and R_f taken together with the carbons to which they are attached form a carbonyl, a methanthial, a heterocyclic ring, a cycloalkyl group or a bridged cycloalkyl group;

k is an integer from 1 to 3;

T at each occurrence is independently a covalent bond, a carbonyl, an oxygen, $-S(O)_o-$ or $-N(R_a)R_i-$;

o is an integer from 0 to 2;

R_a is a lone pair of electrons, a hydrogen or an alkyl group;

R_i is a hydrogen, an alkyl, an aryl, an alkylcarboxylic acid, an arylcarboxylic acid, an alkylcarboxylic ester, an arylcarboxylic ester, an alkylcarboxamido, an arylcarboxamido, an alkylaryl, an alkylsulfinyl, an alkylsulfonyl, an arylsulfinyl, an arylsulfonyl, a sulfonamido, a carboxamido, a carboxylic ester, an amino alkyl, an amino aryl, $-CH_2-C(T-Q)(R_e)(R_f)$, or $-(N_2O_2-)^-\bullet M^+$, wherein M^+ is an organic or inorganic cation; with the proviso that when R_i is $-CH_2-C(T-Q)(R_e)(R_f)$ or $-(N_2O_2)^-\bullet M^+$, or R_e or R_f are T-Q or $(C(R_e)(R_f))_k$-T-Q, then the "-T- Q" subgroup can be a hydrogen, an alkyl, an alkoxy, an alkoxyalkyl, an aminoalkyl, a hydroxy, a heterocyclic ring or an aryl group.

19. (Amended) A composition comprising at least one compound of claim 2 [10] or a pharmaceutically acceptable salt thereof, and at least one compound that donates, transfers or

releases nitric oxide, or induces the production of endogenous nitric oxide or endothelium-derived relaxing factor, or is a substrate for nitric oxide synthase.

20. (Amended) The composition of claim 19, further comprising a pharmaceutically acceptable carrier.